Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Canceled)

Claim 2. (Previously Presented) The assay of claim 37, wherein the assay composition comprises purified CoaX protein.

Claim 3. (Previously Presented) The assay of claim 37, wherein the assay composition comprises partially purified CoaX protein.

Claim 4. (Previously Presented) The assay of claim 37, wherein the assay composition comprises crude cell extracts from a cell producing CoaX protein.

Claim 5. (Previously Presented) The assay of claim 37, wherein the CoaX protein is encoded by a *coaX* gene derived from a pathogenic bacterium selected from the group consisting of *Bordetella pertussis, Borrelia burgdorferi, Campylobacter jejuni, Clostridium difficile, Helicobacter pylori, Neisseria meningitidis, Pseudomonas aeruginosa, Treponema pallidum* and *Xylella fastidiosa.*

Claim 6. (Original) The assay of claim 5, wherein the CoaX protein has an amino acid sequence selected from the group consisting of SEQ ID NO:15, SEQ ID NO:11, SEQ ID NO:21, SEQ ID NO:55, SEQ ID NO:14 or SEQ ID NO:67, SEQ ID NO:43 or SEQ ID NO:22, SEQ ID NO:20, SEQ ID NO:10 and SEQ ID NO:65.

Claim 7. (Previously Presented) The assay of claim 37, wherein the CoaX protein is encoded by a *coaX* gene derived from a pathogenic bacterium selected from the group consisting of *Bacillus anthracis, Bordetella pertussis, Borrelia burgdorferi, Campylobacter jejuni, Clostridium difficile, Helicobacter pylori, Neisseria meningitidis, Neisseria gonorrhoeae, Porphyromonas gingivalis, Pseudomonas aeruginosa, Treponema pallidum* and *Xylella fastidiosa.*

Claim 8. (Original) The assay of claim 7, wherein the CoaX protein has an amino acid sequence selected from the group consisting of SEQ ID NO:45, SEQ ID NO:15, SEQ ID NO:11, SEQ ID NO:21, SEQ ID NO:55, SEQ ID NO:14 or SEQ ID NO:67, SEQ ID NO:43 or SEQ ID NO:22, SEQ ID NO:39, SEQ ID NO:41, SEQ ID NO:20, SEQ ID NO:10 and SEQ ID NO:65.

Claim 9. (Currently Amended) The assay of claim 37, wherein the CoaX is encoded by a *coaX* gene derived from a bacterium selected from the group consisting of *Aquifex aeolicus, Bacillus anthracis, Bacillus halodurans, Bacillus stearothermophilus, Bacillus subtilis, Caulobacter crescentus, Chlorobium tepidum, Clostridium acetobutylicum, Dehalococcoides ethenogenes, Deinococcus radiodurans, Desulfovibrio vulgaris, Geobacter sulfurreducens, Pseudomonas syringae, Pseudomonas putida, Rhodobacter capsulatus, Thiobacillus ferrooxidans, Streptomyces coelicolor, Synechocystis sp., Thermotoga maritima, Bordetella pertussis, Borrelia burgdorferi, Campylobacter jejuni, Clostridium difficile, Helicobacter pylori, Neisseria meningitidis, Neisseria gonorrhoeae, Porphyromonas gingivalis, Pseudomonas aeruginosa, Treponema pallidum, Xylella fastidiosa* and *Mycobacterium tuberculosis.*

Claim 10. (Original) The assay of claim 9, wherein the CoaX protein has an amino acid sequence selected from the group consisting of SEQ ID NO:12, SEQ ID NO:70, SEQ ID NO:45, SEQ ID NO:47, SEQ ID NO:49, SEQ ID NO:2, SEQ ID NO:51, SEQ ID NO:53, SEQ ID NO:3, SEQ ID NO:57, SEQ ID NO:8, SEQ ID NO:59, SEQ ID NO:7, SEQ ID NO:61, SEQ ID NO:6, SEQ ID NO:63, SEQ ID NO:4, SEQ ID NO:13,

SEQ ID NO:9, SEQ ID NO:15, SEQ ID NO:11, SEQ ID NO:21, SEQ ID NO:55, SEQ ID NO:14 or SEQ ID NO:67, SEQ ID NO:43 or SEQ ID NO:22, SEQ ID NO:39, SEQ ID NO:41, SEQ ID NO:20, SEQ ID NO:10, SEQ ID NO:65 and SEQ ID NO:5.

Claim 11. (Previously Presented) The assay of claim 37, wherein said composition is further contacted with pantothenate or a pantothenate analog.

Claim 12. (Previously Presented) The assay of claim 11, wherein the ability to inhibit activity of CoaX is determined based on the ability of the test compound to effect levels of pantothenate or pantothenate analog in the assay mixture.

Claim 13. (Canceled)

Claim 14. (Previously Presented) The assay of claim 37 wherein step (b) further comprises determining the ability of the test compound to bind to the CoaX protein; wherein the compound is identified as a potential antibiotic based on the ability of the compound to bind to and inhibit the activity of the CoaX protein.

Claim 15-36. (Canceled)

Claim 37. (Previously Presented) An assay for the identification of an antibiotic, comprising;

(a) contacting an assay composition comprising a CoaX protein with a test compound, the CoaX protein having a pantothenate kinase activity; and

(b) determining the ability of the test compound to inhibit the pantothenate kinase activity;

wherein the test compound is identified as an antibiotic based on the ability of the compound to inhibit the pantothenate kinase activity.

Amendments to the Drawings:

The attached sheets of drawings include changes to Figures 6A-6D. In Figures 6A-D the assigned sequence identifiers have been added as follows: *Bacillus subtilis* (SEQ ID NO:2); *Borrelia burgdorferi* (SEQ ID NO:11); *Desulfovibrio vulgaris* (SEQ ID NO:59); *Synechocystis sp.* (SEQ ID NO:13); *Thermotoga maritima* (SEQ ID NO:9); *Helicobacter pylori* (SEQ ID NOs:14 or 67); *Streptomyces coelicolor* (SEQ ID NO:4); *Aquifex aeolicus* (SEQ ID NO:12); *Bordetella pertussis* (SEQ ID NO:15); *Deinococcus radiodurans* (SEQ ID NO:8); *Mycobacterium tuberculosis* (SEQ ID NO:5); *Clostridium acetobutylicum* (SEQ ID NO:3); *Treponema pallidum* (SEQ ID NO:10); and *Rhodobacter capsulatus* (SEQ ID NO:6).